

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: March 4 , 1978

Forwarded to:

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National Fire Protection  
Association  
470 Atlantic Avenue  
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SAFETY RECOMMENDATION(S)

M-78-9

On November 13, 1975, the tank barge B-924 caught fire in one of its cargo tanks and exploded while being repaired at the Brent Towing Company's repair facility in Greenville, Mississippi. The explosion blew the bow rake away from the vessel with such force that large sections of debris were deposited up to 500 yards away, and internal bulkheads, shell plating, and strength members in proximity were severely distorted. A secondary fire engulfed the forward portion of the B-924. The fire, fueled by cargo residues in the B-924, required over 1 1/2 hours of intensive firefighting to extinguish. The fire and explosion killed four persons and injured two others. An adjacent barge was damaged slightly.<sup>1/</sup>

The accident occurred when a marine chemist, certified by the National Fire Protection Association, allowed electric arc welding in a cargo tank containing flammable residues. Welding sparks ignited the residues and initiated a flash fire. The flames quickly propagated across the surface of the residues until they contacted a concentration of flammable vapors and exploded.

Both Coast Guard and U.S. Department of Labor regulations require that vessels be inspected before repairs to insure a safe working environment. In addition, the individual conducting the inspection is required to adhere to the provisions in NFPA Standard No. 306, "Control of Gas Hazards on Vessels to be Repaired," and to issue a certificate attesting to the conditions that were found. NFPA-certified marine chemists are recognized by both Federal agencies as qualified to inspect vessels and issue certificates.

<sup>1/</sup> For more information, read "Marine Accident Report: Tank Barge B-924 Fire and Explosion with Loss of Life, at Greenville, Mississippi November 13, 1975." (NTSB-MAR-78-2)

NFPA Standard No. 306 delineates the criteria which must be met to assess the hazards related to vessel repairs. The standard, however, leaves the final determination of what conditions must be present before repairs can begin solely to a marine chemist's judgment. The standard was revised in 1975 to quantify the concentration of flammable vapors in an atmosphere where hot work may be allowed. However, because of the tendency of hydrocarbon vapors to form stratified layers or pockets in enclosed spaces and because of the random sampling techniques used by marine chemists, this requirement may not prevent fires in spaces containing flammable residues.

NFPA Standard No. 306 admonished marine chemists to adhere to the "Rules and Regulations for Tank Vessels" and other applicable regulations of the U.S. Coast Guard, and the "Occupational Safety and Health Standards" of the U.S. Department of Labor. The sections of these regulations that apply to marine chemists are scattered throughout Titles 29, 33, and 46 of the Code of Federal Regulations. There are no publications which consolidate the applicable sections or which contain bibliographies citing where the sections are located.

Therefore, the National Transportation Safety Board recommends that the National Fire Protection Association:

Revise NFPA Standard No. 306, "Control of Gas Hazards on Vessels to be Repaired," to include:

- (1) Specific quantitative parameters with regard to flammability hazards which must be met before personnel enter and repair vessels;
- (2) recommended testing techniques to be used when inspecting vessels to be repaired; and
- (3) an appendix containing all Federal regulations that pertain to the duties and responsibilities of marine chemists. (Class II, Priority Action) (M-78-9)

BAILEY, Acting Chairman, McADAMS, HOGUE, and KING, Members concurred in the above recommendation.



By: Kay Bailey  
Acting Chairman